

WHAT IS CLAIMED IS:

1. A code combining soft handoff (CCSH) method, comprising:

measuring a strength of respective pilot signals received from a plurality of base stations;

if the strength of the received pilot signal is higher than a prescribed value, allocating a first code pattern to the corresponding base station to receive a coded signal from the corresponding base station, and if the strength of the received pilot signal is lower than the prescribed value, dropping a signal of the corresponding base station;

receiving the coded signal using the first code pattern from a first one of the plurality of base stations; and

changing the first code pattern of a signal from a second one of the plurality base stations to a second code pattern different from the first code pattern if the code patterns of signals from the first and second base stations are the first code pattern when the signals from the two base stations are received.

2. The method of claim 1, wherein the change of the code pattern from the first to the second code pattern is performed at a prescribed time to match a code pattern changing time of the second base station and a mobile terminal.

3. The method of claim 2, wherein the code pattern changing time is defined in a time field added to a universal handoff direction message (UHDM) sent from at least one base station to the mobile terminal.

4. The method of claim 3, wherein the time field comprises 6 bits to define 64 code pattern changing times, and the code pattern changing time defined in the time field is defined in a system time unit.

5. The method of claim 4, wherein the system unit time is 80ms, and wherein the time field is a SWAP_ACTION_TIME field.

6. The method of claim 5, wherein the UHDM further comprises a swap indicator field, to indicate if the code change is necessary.

7. The method of claim 2, wherein a determination of whether to apply the code pattern changing time is defined in a UHDM sent from the corresponding base station to the mobile terminal.

8. The method of claim 7, wherein a determination of whether to apply the code pattern changing time is defined in a USE_SWAP_TIME field added to the UHDM.

9. A handoff method for a communication system, comprising:
measuring a strength of pilot signals received from a plurality of base stations;
if the strength of the received pilot signal is higher than a prescribed value,
allocating a new code pattern to the corresponding base station to additionally receive a signal
from the base station, and if the strength of the received pilot signal is lower than the prescribed
value, dropping a signal of the corresponding base station; and
if signals are received from three base stations, allocating different code patterns
to the signals from two of the three base stations whose pilot signal strengths are high among
the signals from the three base stations, and receiving the signals from the two active-state base
stations.

10. The method of claim 9, further comprising maintaining the code pattern allocated to a first base station and allocating a code pattern different from the code pattern of the first base station to a second base station newly determined as in the active state to receive the signal having a different code from the second base station when the mobile terminal moves to a
5 3-way handoff region and receives signals from the two active-state base stations whose pilot signal strength is high.

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11. The method of claim 10, wherein if the second base station is not in the active state in the 3-way handoff region, the a base station controller allocates the different code patterns to the two base stations newly determined as in the active state to receive the signals from the two active-state base stations.

12. The method of claim 9, wherein if a mobile terminal moves from a 2-way handoff region where the mobile terminal receives the signals from first and second base stations to the 3-way handoff region where the mobile station receives signals from first, second, and third base stations, and receives the signals from the two base stations whose pilot signal strengths are
5 high, the mobile terminal maintains the code pattern allocated to the first base station and a base station controller allocates a code pattern different from the code pattern of the first base

station to the base station whose pilot signal strength is high to receive the signals from the two active-state base stations with different codes.

13. The method of claim 9, wherein if the mobile terminal, while receiving the signals from the two active-stated base stations whose pilot signal strength is high in the 3-way handoff region, moves to a 2-way handoff region, and receives signals from the base stations corresponding to the 2-way handoff region, the mobile terminal maintains the code pattern allocated to the base station which is determined to be in the active state and from which the mobile terminal receives the signal, and a base station controller allocates a code pattern different from the code pattern of the base station from which the mobile terminal receives the signal to the base station newly determined as in the active state to receive the signals from the two active-state base stations.

14. The method of claim 9, wherein if the pilot signal strength of the subject base station from which the mobile terminal does not receive the signal becomes higher than the pilot signal strength of the active-state base station in a state that the mobile terminal receives the signals from the two active-state base stations whose pilot signal strength is high in the 3-way handoff region, the mobile terminal determines the subject base station as the new active-

state base station to receive the signal therefrom, drops the signal from the base station having the pilot signal whose strength is lower than the pilot signal strength of the subject base station, and a base station controller allocates the different code patterns to the two active-state base stations by allocating the code pattern allocated to the dropped base station to the subject base station to receive the signals from the two active-state base stations.

15. A method of performing a handoff in a mobile communication system, comprising:

transmitting a power strength measurement message to a target base station while maintaining communications with a first base station using a first code pattern;

receiving a handoff direction message from the target base station, including an initial code pattern to be used by the target base station;

transmitting a handoff complete message to the target base station when communication is established with the target base station; and

changing the initial code pattern used with the target base station to a second code pattern at a prescribed time if the initial code pattern is the first code pattern.

16. The method of claim 15, wherein the handoff direction message further includes a swap indicator to indicate if the initial code pattern needs to be changed to the second code pattern, and a swap time indicator to indicate when a swap from the initial code pattern to the second code pattern will occur.

17. The method of claim 15, wherein the handoff is a three-way handoff.

18. The method of claim 15, wherein communication is simultaneously maintained with the first base station using the initial code pattern and a second base station using the second code pattern prior to transmitting the power strength measurement message.

19. The method of claim 18, wherein communication with the second base station is dropped when communication with the target base station is acquired.

20. The method of claim 15, wherein each of the code patterns is determined by a turbo coder.

21. A handoff direction message for use in a mobile communication system, comprising:

a pilot PN code, to identify a target base station;

a puncturing pattern, to indicate a first code pattern of a bit stream transmitted

5 by the target base station;

a switching indicator, to indicate if the first code pattern of the target base station

will be switched to a second code pattern; and

a switching time, to indicate when the first code pattern will be switched if the switching indicator indicates that the first code pattern will be switched.

22. The message of claim 21, wherein the puncturing pattern is generated by a turbo encoder in a base station.

23. The message of claim 21, wherein the switching indicator indicates that the first code pattern will be switched when a mobile station to which the target base station transmits the handoff direction message is already receiving a bit stream with the first code sequence from a current base station.

24. The method of claim 23, wherein the mobile station and the target base station simultaneously switch the first code pattern to the second code pattern at the time indicated in the switching time parameter.

25. The method of claim 21, wherein a mobile station receives the handoff direction message and transmits a handoff complete message to the target base station when a handoff is performed to the target base station.

26. A subscriber unit of a mobile communication system, comprising:

means for providing communication with a first base station using a first code pattern;

means for receiving a handoff direction message from a target base station,

5 including an initial code pattern to be used by the target base station;

means for transmitting a handoff complete message to the target base station when communication is established with the target base station; and

means for synchronizing a change of the initial code pattern used with the target base station to a second code pattern at a prescribed time if the initial code pattern is the first

10 code pattern.

27. The device of claim 26, wherein the base station changes the initial code to the second code at a prescribed time, wherein the prescribed time is included in the handoff direction message to the mobile station.

28. A base station in a communication system, comprising:
means for transmitting a PN code to a mobile station to uniquely identify the base station among a plurality of base stations;

means for receiving a power strength measurement message from the mobile station;

means for transmitting a handoff direction message to the mobile station, the handoff direction message including an initial code pattern to be used by the base station, a switching indicator, to indicate if the initial code pattern station will be switched to a second code pattern, and a switching time, to indicate when the code pattern will be switched;

10 means for receiving a handoff complete message from the mobile station when communication is established; and

means for changing the initial code pattern to the second code pattern at the time indicated in the handoff direction message if it is determined that the code pattern needs to be switched.